AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the

application:

LISTING OF CLAIMS:

1. (original): Method for producing a workpiece, and, for example, a plate, of steel which is resistant to abrasion and whose chemical composition comprises, by weight:

$$0.35\% \leq C \leq 0.8\%$$

$$0\% \leq Si \leq 2\%$$

$$0\% \leq Al \leq 2\%$$

$$0.35\% \leq Si + Al \leq 2\%$$

$$0\% \leq Mn \leq 2.5\%$$

$$0\% \leq Ni \leq 5\%$$

$$0\% \leq Cr \leq 5\%$$

$$0\% \leq Mo \leq 0.50\%$$

$$0\% \leq W \leq 1.00\%$$

$$0.1\% \leq Mo + W/2 \leq 0.50\%$$

$$0\% \leq B \leq 0.02\%$$

$$0\% \leq Ti \leq 2\%$$

$$0\% \leq Zr \leq 4\%$$

$$0.05\% \leq Ti + Zr/2 \leq 2\%$$

$$0\% \leq S \leq 0.15\%$$

$$N < 0.03\%$$

- optionally from 0% to 1.5% of copper,
- optionally at least one element selected from Nb, Ta and V at contents such that $Nb/2 + Ta/4 + V \leq 0.5\%$,
- optionally at least one element selected from Se, Te, Ca, Bi, Pb at contents which are less than or equal to 0.1%,

the balance being iron and impurities resulting from the production operation, the chemical composition further complying with the following relationships:

$$0.1\% \leq C - Ti/4 - Zr/8 + 7xN/8 \leq 0.55\%$$

and:

$$Ti + Zr/2 - 7xN/2 \geq 0.05\%$$

and:

$$1.05xMn + 0.54xNi + 0.50xCr + 0.3x(Mo + W/2)^{1/2} + K > 1.8$$

with $K = 0.5$ if $B \geq 0.0005\%$ and $K = 0$ if $B < 0.0005\%$,

according to which the plate is subjected to a thermal quenching processing operation which is carried out in the heat for forming in the hot state and, for example, rolling heat, or after austenitization by reheating in a furnace in order to carry out the quenching:

- the workpiece or the plate is cooled at a mean cooling rate greater than 0.5°C/s between a temperature greater than AC_3 and a temperature of from $T = 800 - 270xC^* - 90xMn - 37xNi - 70XCr - 83x(Mo + W/2)$, with $C^* = C - Ti/4 - Zr/8 + 7xN/8$, to T-50°C,

- the workpiece or the plate is then cooled at a core cooling rate $Vr < 1150xep^{-1.7}$ and greater than 0.1°C/s between the temperature T and 100°C, ep being the thickness of the plate expressed in mm,

- the workpiece or the plate is cooled as far as ambient temperature and optionally planishing is carried out.

2. (original): Method according to claim 1, characterized in that:

$$1.05xMn + 0.54xNi + 0.50xCr + 0.3x(Mo + W/2)^{1/2} + K > 2.$$

3. (currently amended): Method according to <u>claim 1,</u>~~claim 1 or claim 2,~~ characterized in that:

$$C > 0.45\%.$$

4. (currently amended): Method according to <u>claim 1,</u>~~any one of claims 1 to 3,~~ characterized in that:

$$Si + Al > 0.5\%.$$

5. (currently amended): Method according to <u>claim 1,</u>~~any one of claims 1 to 4,~~ characterized in that:

$$Ti + Zr/2 > 0.10\%.$$

6. (currently amended): Method according to <u>claim 1,</u>~~any one of claims 1 to 5,~~ characterized in that:

$$Ti + Zr/2 > 0.30\%.$$

7. (currently amended): Method according to <u>claim 1,</u>~~any one of claims 1 to 6,~~ characterized in that:

$$C^* \geq 0.22\%.$$

8. (currently amended): Method according to <u>claim 1,</u>~~any one of claims 1 to 7,~~ characterized in that tempering is further carried out at a temperature which is less than or equal to 350°C.

9. (currently amended): Method according to <u>claim 1,</u>~~any one of claims 1 to 8,~~ characterized in that, in order to add titanium to the steel, the liquid steel is placed in contact with a slag containing titanium and the titanium of the slag is caused to diffuse slowly in the liquid steel.

10. (original): Workpiece, and in particular a plate, of steel which is resistant to abrasion and whose chemical composition comprises, by weight:

$$0.35\% \leq C \leq 0.8\%$$
$$0\% \leq Si \leq 2\%$$
$$0\% \leq Al \leq 2\%$$
$$0.35\% \leq Si + Al \leq 2\%$$
$$0\% \leq Mn \leq 2.5\%$$
$$0\% \leq Ni \leq 5\%$$
$$0\% \leq Cr \leq 5\%$$
$$0\% \leq Mo \leq 0.50\%$$
$$0\% \leq W \leq 1.00\%$$

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$$0.1\% \leq Mo + W/2 \leq 0.50\%$$

$$0\% \leq B \leq 0.02\%$$

$$0\% \leq Ti \leq 2\%$$

$$0\% \leq Zr \leq 4\%$$

$$0.05\% \leq Ti + Zr/2 \leq 2\%$$

$$0\% \leq S \leq 0.15\%$$

$$N < 0.03\%$$

- optionally from 0% to 1.5% of copper,

- optionally at least one element selected from Nb, Ta and V at contents such that $Nb/2 + Ta/4 + V \leq 0.5\%$,

- optionally at least one element selected from Se, Te, Ca, Bi, Pb at contents less than or equal to 0.1%,

the balance being iron and impurities resulting from the production operation, the chemical composition further complying with the following relationships:

$$0.1\% \leq C - Ti/4 - Zr/8 + 7xN/8 \leq 0.55\%$$

and:

$$Ti + Zr/2 - 7xN/2 \geq 0.05\ \%$$

and:

$$1.05xMn + 0.54xNi + 0.50xCr + 0.3x(Mo + W/2)^{1/2} + K\ > 1.8$$

with: K = 0.5 if $B \geq 0.0005\%$ and K = 0 if B < 0.0005%,

whose surface evenness is characterized by a deflection of less than 12mm/m, the steel having a martensitic or martensitic/bainitic structure, the structure further containing from 5% to 20% of retained austenite and carbides.

11. (original): Workpiece according to claim 10, characterized in that:

$$1.05xMn + 0.54xNi + 0.50xCr + 0.3x(Mo + W/2)^{1/2} + K\ > 2.$$

12. (currently amended): Workpiece according to <u>claim 10,</u>~~claim 10 or claim 11,~~ characterized in that:

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C > 0.45%.

13. (currently amended): Workpiece according to <u>claim 10,</u>~~any one of claims 10 to 12,~~ characterized in that:

Si + Al > 0.5%.

14. (currently amended): Workpiece according to <u>claim 10,</u>~~any one of claims 10 to 13,~~ characterized in that:

Ti + Zr/2 > 0.10%.

15. (currently amended): Workpiece according to <u>claim 10,</u>~~any one of claims 10 to 14,~~ characterized in that:

Ti + Zr/2 > 0.30%.

16. (currently amended): Workpiece according to <u>claim 10,</u>~~any one of claims 10 to 15,~~ characterized in that:

$$C^* \geq 0.22\%.$$

17. (currently amended): Workpiece according to <u>claim 10,</u>~~any one of claims 10 to 16,~~ characterized in that it is a plate having a thickness of from 2 mm to 150 mm and whose surface evenness is characterized by a deflection of less than 12mm/m.

18. (currently amended): Workpiece according to <u>claim 10,</u>~~any one of claims 10 to 17,~~ characterized in that the hardness is from 280 HB to 450 HB and:
$$0.1\% \leq C - Ti/4 - Zr/8 + 7 \times N/8 \leq 0.2\%.$$

19. (currently amended): Workpiece according to <u>claim 10,</u>~~any one of claims 10 to 17,~~ characterized in that the hardness is from 380 HB to 550 HB and:

$$0.2\% < C - Ti/4 - Zr/8 + 7xN/8 \leq 0.3\%.$$

20. (currently amended): Workpiece according to <u>claim 10,</u><s>any one of claims 10 to 17,</s> characterized in that the hardness is from 450 HB to 650 HB and:

$$0.3\% < C - Ti/4 - Zr/8 + 7xN/8 \leq 0.5\%.$$